

USSR

UDC: 620.193.6

BARBASHEV, Ye. A., BOGATOV, V. A., PANSHIN, B. I.

"Influence of Proton Bombardment in a Vacuum on Properties of Polymer Films"

L'vov, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 8, No 6, 1972, pp 66-68.

Abstract: This article presents a study of the effects of proton bombardment on polymer films. The study was performed using films of polyethylene terephthalate 20 μ thick and polyvinyl chloride films 200 μ thick. Tensile-test specimens were bombarded in a vacuum by protons at 200 KeV energy produced by an accelerator at 0.014, 0.028 and 0.14 $\mu\text{a}/\text{cm}^2$ density, maximum flux $0.8 \cdot 10^{15}$ protons per square centimeter. Proton bombardment causes both the strength and elongation of the films at rupture to decrease. The effect of radiation decreases with increasing specimen material thickness. Gas chromatography of the specimens before and after bombardment indicated that acetaldehyde is formed upon bombardment of PETP films, which could occur only by rupture of the bonds in the main chain, i.e., destruction of the material.

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Pesticides

USSR

UDC 632.95

KADYROV, CH. SH., ALIYEV, N. A., and BARASHKIN, V. A., Institute of the Chemistry of Vegetable Matter, Academy of Sciences Uzbek SSR

"Method of Producing Gamma-(nitrophenoxy)-butyric Acids"

USSR Authors' Certificate No 329164, Cl. C 07 c 51/18, C 07 c 79/00, C 07 c 50/22, filed 5 Mar 70, published 27 Mar 72 (from RZh-Khimiya, No 20, 25 Oct 72 by T. A. Belyayeva)

Translation: A method is suggested for producing gamma-(nitrophenoxy)-butyric acids by the interaction of gamma-butyrolactone (I) with $\text{NO}_2\text{C}_6\text{H}_4\text{ONa}$ at a

temperature of $150-155^\circ$ in DMPA. The resultant compounds can be employed as plant growth regulators. 24.15 g of $m\text{-NO}_2\text{C}_6\text{H}_4\text{ONa}$, 14.2 g of I and

22.8 ml of DMPA are heated and simultaneously stirred for 2 hours at a temperature of $150-155^\circ$, cooled to $100-105^\circ$, treated with 50 ml of hot water, and acidified with HCl (acid). An ether is extracted and treated with an NaHCO_3 solution. Bicarbonate extracts are acidified, and 23.7 g of gamma-(m-nitrophenoxy)-butyric acid, melting point $114-5^\circ$ (benzene-hexane 1:1), are obtained. Gamma-(p-nitrophenoxy)-butyric acid, melting point $122-3^\circ$ (benzene-hexane), is analogously obtained.

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Acc. Nr.

AP0041538

Abstracting Service:

CHEMICAL ABST.

4170

Ref. Code

UR 0366

89970y Chemical transformations of α -haloketones. Reaction of ring-substituted phenacyl bromides with sodium methylate. Temnikova, T. I.; Dneprovskii, A. S.; Barashkin, V. D.; Kobzeva, A. I. (Leningrad. Gos. Univ., Leningrad, USSR). Zh. Org. Khim. 1970, 6(1), 76-80 (Russ). The reaction of p -XC₆H₄COCH₂Br (I) with MeONa in MeOH soln. at $\sim 0^\circ$ gave 1,3-bis(p -X-substituted-phenyl)-4-bromo-2,3-epoxybutan-1-one (II) and p -XC₆H₄COCH₂OH (III) (X is H, Cl, or Br). The formation of II proceeds through an intermediate carbanion p -XC₆H₄COC⁻HBr, which condenses with I giving p -XC₆H₄COCHBrC(O⁻)(CH₂Br)C₆H₄X- p (IV). The loss of α -Br⁻ from IV gives II. The formation of III starts with the addn. of MeO⁻ to I giving p -XC₆H₄C(O⁻)(CH₂Br)OMe which is hydrolyzed to p -XC₆H₄C(OMe)₂CH₂OH (V) and converted to III. The ketal V (X = Cl) was isolated. The reaction of I (X = Br) with MeONa in HCONMe₂ gave HCO₂CH₂COC₆H₄Br- p , which was hydrolyzed easily to III (X = Br). CPJR

REEL/FRAME
19751406

USSR

BOGOMOLOV, A. M., BARASHKO, A. S. and GRUNSKIY, I. S.

"Experiments with Automata"

Ekspirimenty s Avtomatami [English version above], Kiev, Nauk. Dumka Press, 1973, 144 pp (Translated from Referativnyy Zhurnal Kibernetika, No 9, 1973, Abstract No 9V437)

Translation: This book presents results produced by the authors recently and related only to certain sections of the theory of experiments with automata. Each of the chapters of the book can be read independently of the other chapters.

The introduction presents the basic concepts from the theory of experiments with automata and reviews the basic results in this area, allowing a general idea to be gained of the contemporary status of this theory.

The first chapter is dedicated to the study of control experiments performed in order to determine the correctness of functioning of an automaton. A class of procedures for construction of experiments with shorter estimates of length than the control experiments studied by Khenni, Kaym and Gonents is differentiated.

In the second chapter, the rules for drawing of conclusions based on the results of unconditional and conditional experiments on the recognition of automata of a known class are formalized and the stability of setting sequences is studied.

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BOGOMOLOV, A. M., BARASHKO, A. S. and GRUNSKIY, I. S., Eksperimenty s Avtomatami, Kiev, Nauk. Dumka press, 1973, 144 pp

Chapter Three studies properties of partial tests used in the recognition of automata of a known class and suggests a method for directed search for partial tests. The fourth chapter is dedicated to the study of the possibility of the use of so-called probability experiments for the testing and diagnoses of an automaton, during which the input sequence is fixed not by the experimenter, but rather by a random signal source with predetermined properties.

Chapter Five studies problems of testing and diagnoses of networks of automata and solves the problem of the determination of the defective component of a network by measurements at the input and output of the network.

Chapter Six is dedicated to the study of methods of conversion of arbitrary automata, which can be interpreted as differentiation of test points for provision of a fixed level of testing and diagnoses.

From the forward

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USSR

UDC 519.1

BOGOMOLOV, A. M., BARASHKO, A. S., and GRUNSKIY, I. S.

"Experiments with Automata"

Kiev, Eksperimenty a avtomatami (cf. English above), "Nauk. dumka", 1973, 144 pp, ill. 92 k. (from RZh-Matematika, No 9, Sep 73, Abstract No 9V437 K from the foreword)

Ytranslation: The book presents results recently obtained by the authors relating to only a few sections of the theory of experiments with automata. Every chapter in the book can be read independently of the others.

The introduction presents the fundamental concepts of the theory of experiments with automata and gives a survey of the principal results in this field which imparts a general idea of the current state of this theory.

The first chapter investigates control experiments done to determine whether an automaton is in working order. A class of procedures is distinguished for construction of experiments with shorter estimates of length than the control experiments investigated by Hennie, Keim and Gonenz.

The second chapter formalizes the rules for drawing conclusions based on the results of unconditional and conditional experiments on recognizing automata of a certain class, and it investigates the stability of adjustment sequences.

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USSR

BOGOMOLOV, A. M., et al., *El'sperimenty s avtomatami*, "Nauk. dumka", 1973

The third chapter investigates the properties of partial tests used in recognizing automata of a certain class and suggests a method of directed search for partial tests. The fourth chapter studies the possibility of using so-called probabilistic experiments for checking and diagnosing automata where the input sequence is given by a source of random signals with assigned properties rather than by the experimenter.

The fifth chapter examines questions of checking and diagnosing networks of automata and presents a solution for the problem of determining which component of a network has malfunctioned by measurements at the input and output of the network.

The sixth chapter studies methods of transformation of arbitrary automata, which can be interpreted as isolating control points to ensure a given level of control and diagnosis.

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USSR

UDC 577.4

BARASHKO, A. S.

"Component-Diagnosable Network of Automaton"

Moscow, V sb. Tekhn. diagnostika (Technical Diagnostics -- collection of works),
"Nauka," 1972, pp 206-208 (from RZh-Matematika, No 7, 1972, Abstract No
7V361

Translation: The author determines the sufficient conditions for the possibility of controlling the working order and locating poorly operating components in a given set of components of a net making up a closed knit automaton. For doing this a method is proposed in the form of a network of automaton that would permit a simple experiment for determining its operating faults and locating the faulty component. Author's abstract.

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USSR

UDC 577.4

BARASHKO, A. S.

"Automata Network that Can be Diagnosed Component by Component"

V sb. Tekhn. diagnostika (Technical Diagnostics -- collection of works), Moscow, Nauka Press, 1972, pp 206-208 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V361)

Translation: The sufficient conditions of the possibility of monitoring the state of repair and finding the component which has failed in a given set of components of a network implementing a strongly linked automaton are defined. A method of constructing the implementation of a strongly linked automaton in the form of a network of automata is proposed which would permit simple experimental determination of its failure and finding the failed component.

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USSR

UDC 51.621.391

BARASHKO, A. S.

"Testing the Correctness of an Automaton by Probabilistic Experimentation"

Kibernetika [Cybernetics -- Collection of Works], No 1, Kiev, 1970, pp 34-43,
(Translated from Referativnyy Zhurnal, Kibernetika, No 10, 1971, Abstract
No 10 V612 by N. Katerinokhina).

Translation: It is suggested that a certain automaton $T(A)$, the method of construction of which was given by the authors in an earlier work (RZhMat, 1968, 9V252) be used to test the correctness of automaton A . Automaton $T(A)$, with a sufficiently long probability experiment, establishes the correctness of automaton A with the required probability. An upper estimate of the length of the experiment testing automaton A with the required probability is produced.

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USSR

UDC: 51:621.3

BARASHKO, A. S., BOGOMOLOV, A. M.

"Probabilistic Experiments With an Automaton"

V sb. Adaptatsiya, samoorganizatsiya (Adaptation, Self-Organization--collection of works), Moscow, "Nauka", 1970, pp 14-21 (from RZh-Kibernetika, No 1, Jan 71, Abstract No 1V363)

Translation: The process of observing the input and output sequences of an automaton which has a source of random signals at the input, and analyzing the resultant data, is called a probabilistic experiment. Let us consider the automaton $A = (S, X, Y, \delta, \lambda, S_0)$, where S is the set of states, X is the alphabet of inputs, Y is the alphabet of outputs, δ is the transformation function, and λ is the sign function. Let the partition π be given on the set of initial states S_0 , and let ϵ_π be the corresponding relationship of equivalence on S_0 . Let us use the notation $P(x|p)$ to designate the probability that the symbol x will appear at the input of the automaton following the word $p \in X^*$. We shall assume that for some $\epsilon > 0 \forall x \forall p (P(x|p) > \epsilon)$. If it may be determined with probability one during the course of the experiment, to which class of π the initial state belongs, then the automaton is said to be diagnosable. Let us give the relationship $p: (s, i) \in p \leftrightarrow (\exists p \in X^*) (\delta(s, p) = i \wedge \lambda(i, p) \wedge \lambda(s, p) = \lambda(i, p))$. And let $p_s = p \cap S_0 \times S_0$. It is proved that a necessary

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BARASHKO, A. S., BOGOMOLOV, A. M., Adaptatsiya, samoorganizatsiya, Moscow, Nauka, 1970, pp 14-22

and sufficient condition for diagnosability of an uatomaton is the connection $\rho_s C_n$, an algorithm being given for checking the latter condition.

It is shown that the experiment may be analyzed by a monitoring automaton. An estimate is given for the mathematical expectation of a step of the experiment, which leads to determination of a class of partition π . In conclusion, a special case is considered: Recognition of an automaton which belongs to a finite class of automata. A. Maslov.

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1/2 007 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--CONCERNING COMPONENT DIAGNOSED AUTOMATON DECOMPOSITION -U-
AUTHOR--BARASHKO, A.S. *B*
COUNTRY OF INFO--USSR
SOURCE--AVTOMATIKA I TELEMEXHANIKA, 1970, NR 5, PP 189-194
DATE PUBLISHED-----70
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.
TOPIC TAGS--AUTOMATON, ERROR ANALYSIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1993/0921 STEP NO--UR/0103/70/000/005/0189/0194
CIRC ACCESSION NO--AP0113756
UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0113756

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERE ARE DEFINED SUFFICIENT
CONDITIONS OF THE EXISTENCE OF SUCH A STRONGLY CONNECTED AUTOMATON
DECOMPOSITION UNDER WHICH, WHEN THE AUTOMATON IS FAULTY, IT IS POSSIBLE
TO DETECT A DEFECTIVE COMPONENT BY MEANS OF A SIMPLE EXPERIMENT.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--SOME PRINCIPLES GOVERNING THE CONSTRUCTION OF MOUNDS, FOR SINTERED
METAL PARTS -U-
AUTHOR--BARASHKOV, A.A.
COUNTRY OF INFO--USSR
SOURCE--POROSHKOVAYA MET., FEB. 1970, (2), 104-107
DATE PUBLISHED----FEB70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS
TOPIC TAGS--ECONOMICS, MOLDING MATERIAL, SINTERED METAL, POWDER METAL
MOLDING
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/0124 STEP NO--UR/0226/70/000/002/0104/0107
CIRC ACCESSION NO--AP0123896
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123896

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOME GENERAL PRINCIPLES GOVERNING THE CHOICE OF SIZE AND SHAPE IN THE CONSTRUCTION OF MOULDS FOR SINTERED METAL PARTS ARE PRESENTED AND DISCUSSED IN RELATION TO PRACTICAL REQUIREMENTS. SOME PARTICULAR EXAMPLES FOR THE MOULDING OF SPECIAL SHAPES, E.G. PARTS HAVING A STEPPED CROSS SECTION, ARE INDICATED. BY CAREFUL ATTENTION TO THE DESIGN OF THE MOULDS MUCH WASTED EFFORT IN THE ULTIMATE FINISHING OF THE PARTS MAY BE SAVED.

UNCLASSIFIED

1/2 035 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--SPECTROPHOTOMETRIC APPARATUS WITH PULSED PHOTOEXCITATION FOR
STUDYING THE PRIMARY PROCESSES OF PHOTOSYNTHESIS -U-
AUTHOR-(CB)-CHIBISOV, A.K., BARASHKOV, B.I., KARYAKIN, A.V.
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(2), 243-7
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--PHOTOSYNTHESIS, XENON LAMP, CHLORELLA, PHOTOCHEMISTRY,
ABSORPTION SPECTRUM, SPECTROPHOTOMETRY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3003/1044 STEP NC--UR/0368/70/012/002/0243/0247
CIRC ACCESSION NO--AP0130079

2/2 033

UNCLASSIFIED

PROCESSING DATE--20NOV76

CIRC ACCESSION NO--AP0130079

ABSTRACT/EXTRACT--(U) GP-G- ABSTRACT. THE FLASH EXCITATION SYSTEM DESCRIBED USED A Xe PULSE LAMP FOR EXCITATION, EITHER WITH A SINGLE LIGHT PULSE OF DURATION 5 TIMES 10 PRIME NEGATIVES SEC OR MULTIPULSE EXCITATION AT A FREQUENCY OF 300 PULSES-SEC (DURATION OF EACH PULSE 10 PRIME NEGATIVES). LIGHT INTENSITY FALLING ON THE SAMPLE WAS 400 ERGS-CM PRIME2-SEC. THE DETECTING SYSTEM WAS FORMED BY A FILTER SYSTEM FOR VARIOUS WAVELENGTHS IN THE REGION 390-560 NM. THE DIFFERENTIAL ABSORPTION SPECTRA (LIGHT VS. DARK) OF PHOTOSYNTHESIZING SYSTEMS WERE MEASURED IN CHLORELLA, ISOLATED (ACTIVE AND REACTIVATED BY PHENAZINE METHOSULFATE AND ASCORBIC ACID) CHLOROPLASTS FROM PEA, AND CHLOROPLAST FRAGMENTS PRODUCED BY SONICATION. PULSE EXCITATION INDUCED SEVERE SPECTRAL CHANGES, ESP. IN REACTIVATED CHLOROPLASTS. ABSORPTION BANDS AT 440 AND 515-52 NM WERE OBS.; THESE BANDS WERE NOT DETECTED BY OTHER TECHNIQUES AND MAY BE DUE TO REVERSED ELECTRON TRANSFER OXIDIZING CHLOROPHYLL A TO CHLOROPHYLL B. ADDN. OF DICHLOROINDOPHENOL (I) TO REACTIVATED CHLOROPLASTS COMPLETELY INHIBITED BOTH 400 AND 515 NM BANDS DUE TO EFFECTIVE ELECTRON TRANSFER, (CHLOROPHYLL B) PRIME NEGATIVE PLUS I YIELDS CHLOROPHYLL B PLUS I PRIME NEGATIVE. DIFFERENTIAL SPECTRA OF SONICATED CHLOROPLASTS WERE IDENTICAL WITH THOSE OF REACTIVATED ONES EXCEPT THAT THE 475 BAND WAS SHIFTED TO 425 NM, WHICH IS CHARACTERISTIC FOR ACTIVE CHLOROPLASTS.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ACCOUNT OF RADIATION CORRECTIONS FOR THE EIKONAL SCATTERING
AMPLITUDE IN QUANTUM FIELD THEORY MODEL -U-
AUTHOR-(04)-BARBASHOV, B.M., KULESHOV, S.P., MATVEYEV, V.A., SISAKYAN,
A.N.
COUNTRY OF INFO--USSR
SOURCE--(JINR E2-4983)
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--QUANTUM FIELD THEORY, SCATTERING AMPLITUDE, APPROXIMATION
METHOD, ERROR CORRECTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3001/2180 STEP NO--UR/0000/70/000/000/0007/0007
CIRC ACCESSION NO--AT0127544
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NU--AT0127544

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EIKONAL REPRESENTATION FOR THE SCATTERING AMPLITUDE TAKING INTO ACCOUNT THE RADIATION CORRECTIONS IS OBTAINED BY MEANS OF THE FUNCTIONAL INTEGRATION METHOD. IN THE APPROXIMATION USED THE SUMMATION OF THE RADIATION CORRECTIONS LEADS TO THE APPEARANCE IN THE EXPRESSION FOR THE SCATTERING AMPLITUDE OF THE MULTIPLICATIVE FACTOR DEPENDING ONLY ON THE MOMENTUM TRANSFER.
FACILITY: JOINT INST. FOR NUCLEAR RESEARCH, DUBNA (USSR).

UNCLASSIFIED

Acc. Nr: AP0101134

Ref. Code: UR0297

PRIMARY SOURCE: Antibiotiki, 1970, Vol 15, Nr 3, pp 208-212

PRODUCTION OF ANTIBIOTICS OF AZALOMYCIN F TYPE BY ACTINOMYCES
IMBRICATUS N. SP.

V. A. Tsyganov, Yu. M. Konev, N. P. Barashkova, L. Ya. Petrova, S. V. Spolovov

Leningrad Institute for Antibiotics

Three actinomycetes belonging to non-chromogenic actinomycetes were isolated from soils of arid zones of the South regions of the USSR. The aerial mycelium of the cultures was slightly developed of whitish color. The sporophores were spiral, the spores oval with smooth membrane. When grown on soybean media with glucose, the cultures produced antifungal antibiotics close to azalomycin F. Comparison of the isolates with the organism producing azalomycin F described in the literature and close species of actinomycetes allowed to classify it as a new species designated as Actinomyces imbricatus (Konev, Tsyganov, Barashkova) n. sp.

REEL/FAME

19850759

USSR

UDC: 621.382.002

CHAGULOV, V. S., GOYKHMAN, I. E., BLAGIDZE, Yu. M., NAKASHIDZE, G. A., ELIZ-
BARASHVILI, O. A., Institute of Cybernetics, Academy of Sciences of the
Georgian SSR

"An Optron"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztzy, Tovarnyye Znaki,
No 7, Mar 72, Author's Certificate No 329602, Division H, filed 26 May 70,
published 9 Feb 72, p 210

Translation: This Author's Certificate introduces an optron which contains
a photoreceiver, an emitter and a shell. As a distinguishing feature of
the patent, sealing is improved and optical coupling is provided between
the receiver and the emitter by making the shell from transparent copolymers
with a low index of refraction, and by filling the space between the photo-
receiver and emitter with a polymerized copolymer with a high index of re-
fraction.

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USSR

UDC 536.46:533.6

KRIVULIN, V. N., LOVACHEV, L. A., BARATOV, A. N., MAKEYEV, V. I.

"Study of the Effect of Acceleration on the Concentration Limits of Ignition"

V sb. Gorenije i vzryv (Combustion and Explosion -- Collection of Works), Moscow, "Nauka", 1972, pp 296-298 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B943)

Translation: Experimental results from a study of the effect of acceleration on the ignition limits of natural gas in air are presented. The experiments were conducted on a device that consisted of a rotating reaction vessel. It was established that under plane propagation along the acceleration vector the ignition limits are compressed and upon achieving an overload of 100 g_0 ($g_0 = 9.8 \text{ m/sec}^2$) the hot mixtures lose the ability to propagate flames. At the same time the ignition limits are weakly dependent on the overload upon the propagation of flame counter to the acceleration vector. 6 ref. Authors' abstract.

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USSR

UDC 620.9.001.24

YAKUSHA, G. B., BARATOV, E. I., MAN'KOVSKIY, A. L., KHMELEVSKIY, YE. I.

"Procedural Problems of Forecasting the Development of Regional Power Engineering to the Year 2000"

Vopr. metodol. regional'n. ekon. prognozir. (Problems of Procedural Regional Economic Forecasting), Novosibirsk, 1970, pp 207-221 (from RZh-Teploenergetika, No 2, Feb 71, Abstract No 2G1)

Translation: Research in predicting the development of power engineering in the USSR to the year 2000 should include the prospects for development of power engineering of individual republics or economic regions. The forecasting procedure used for the USSR is to a great extent inapplicable for individual economic regions. Forecasting such complex economic phenomena as the development of branches of the national economy, in particular, power engineering, requires the use of a set of forecasting methods -- normative, expert estimates, simulation, extrapolation, and so on. The development of the forecasts to the year 2000 requires careful preparation of the initial base. The statistical series of the base period must be highly representative with respect to the forecasted period. As the base it is expedient to take statistical series for the postwar years (approximately from 1950). The level and nature of

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USSR

YAKUSHA, G. B., et al., Vopr. metodol. regional'n. ekon. prognozir. Novosibirsk, 1970, pp 207-221

development of an economic region and its energy base (types and capacities of the generating sources, electric power network, power systems, and so on) are determined by the presence of primary energy sources economically expedient and practically accessible for development. Insurance of primary power sources and prospective estimation of the initial energy base are acquiring special urgency for regions having a highly developed multiple-branch economy characterized by significant power consumption. The basic areas of development of power engineering of the region permits the development of recommendations with respect to scales of production of the power resources proper and those received from the outside (fuel, electric power), the scales of development of atomic power engineering, and so on. The most widespread tool of optimization of the fuel and energy balance of the region is the production-distribution model which permits optimization of the scales of extraction and production of local forms of energy resources, distribution of the energy resources between individual networks and consumers and also the placement scheme for the large electric power plants and internetwork flows of electric power. The bibliography has 8 entries.

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BARATOV, Kh. A.

SPRS 55478
26 March 1972
UDC 616-006-085.849.19

ORGANIZATION OF THE ONCOLOGICAL DIVISION OF LASER THERAPY

(Article by N. F. Gamalova, I. R. Lazarev, and Kh. A. Baratov, Scientific-Research Institute for Experimental and Clinical Oncology, Kiev; Moscow, Meditsinskaya Tekhnika, Russian, No 5, 1971, submitted 16 November 1970, pp 40-42)

During the 10 years of their existence, lasers have begun to be more widely adapted in various fields of science and technology. With each year the use of lasers expands also in medico-biological research. In a number of branches of medicine (oncology, dermatology and, possibly surgery) attempts at clinical adaptation of laser radiation are being undertaken. Laser ophthalmocoagulators have already been in use for several years in the ophthalmological clinic.

The clinical use of lasers requires the presence of special operating personnel whose assignment consists of adapting themselves to laser technology for solving therapeutic problems by means of appropriate devices (light guides, protective shields, etc.) under conditions assuring the safety of personnel and patients. Safety technology must be the central thought in organizing and equipping laser operations. The eyes, because of their natural focusing ability, are the most sensitive of human organs to laser radiation.

The damage to human tissues and organs by laser radiation can be the result of direct action from radiation or its indirect effect on the surrounding media. Taking into account these two aspects of the injurious action of laser radiation on the human organism, safety technology in work with lasers should include individual as well as general measures of protection. Individual measures of protection include wearing special tightly-fitting goggles and opaque material for the protection of the skin. General safety measures include correct planning of laser operating facilities and placing in them the instruments, outfitting the rooms with the proper equipment, etc.

During irradiation of patients by laser the air becomes contaminated by the scattered particles of irradiated skin of, for example, tumor

1/2 016 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--LISTENING TO THE PULSE OF THE EARTH, TADZHIKISTAN BUILDING BROAD
NETWORK OF SEISMIC STATIONS -U-
AUTHOR--BARATOV, R.
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, PRAVDA, 7 JULY 1970, P 6.
DATE PUBLISHED--07JUL70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--SEISMOLOGIC STATION, EARTHQUAKE FORECAST, EARTH CRUST
DEFORMATION, MAGNETIC FIELD INTENSITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3006/1618

STEP NO--UR/9012/70/000/000/0006/0006

CIRC ACCESSION NO--AN0135250

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AN0135250

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE GOVERNMENT OF TADZHIKISTAN HAS ADOPTED A RESOLUTION ON THE CONSTRUCTION OF ONE OF THE COUNTRY'S LARGEST GEOPHYSICAL TESTING RANGES IN THE TERRITORY OF THE GISSARSKAYA AND BAKHSHSKAYA VALLEYS. AN EXTENSIVE NETWORK OF SEISMIC STATIONS IS PLANNED. WORKERS OF THE INSTITUTE OF EARTHQUAKEPROOF CONSTRUCTION AND SEISMOLOGY, IN CLOSE COOPERATION WITH SCIENTISTS OF THE INSTITUTE OF PHYSICS OF THE EARTH OF THE ACADEMY OF SCIENCES USSR, HAVE BEEN ABLE TO DISCOVER SEVERAL IMPORTANT INDICATORS WHICH, AS A RULE, PRECEDE EARTHQUAKES. IT HAS BEEN ESTABLISHED THAT THE SEISMIC REGIME OF THE LOCALITY CHANGES SHARPLY PRIOR TO AN EARTHQUAKE, THERE IS A RAPID DEFORMATION OF THE EARTH'S CRUST, AND THE MAGNETIC FIELD INTENSITY CHANGES. SENSITIVE INSTRUMENTS, TILTMETERS, HAVE BEEN INSTALLED IN HOLES CUT FIFTY METERS INTO THE STEEP BANKS NOT FAR FROM THE NUREKSKAYA HYDROELECTRIC POWER STATION. THE FIRST STAGE OF INVESTIGATIONS HAS VERIFIED THAT THEY RECORD EVEN THE MOST MINUTE SHIFTS IN THE STRATUM AND, IN PRINCIPLE, COULD PROVIDE WARNING OF APPROACHING DANGER. THE CREATION OF A GEOPHYSICAL TESTING RANGE WILL MAKE IT POSSIBLE TO CONDUCT INVESTIGATIONS IN THE FORECASTING OF TREMORS ON A MODERN, MORE PURPOSEFUL TECHNOLOGICAL BASIS. IT IS BELIEVED THAT WITHIN SEVERAL YEARS THE SCIENTISTS WORKING HERE WILL BE ABLE TO ACCUMULATE THE MATERIAL THEY REQUIRE ON THE RELATIONSHIP BETWEEN GEOPHYSICAL FIELDS AND THE MANIFESTATION OF SEISMICITY. THIS WILL MEAN THAT THE PREDICTION OF EARTHQUAKES WILL BECOME A REALITY FOR A VERY LARGE REGION.

UNCLASSIFIED

BARATOV, Ye. I.

Econ

MINISTERIAL WORK AND MATERIALS

PROSPECTS FOR DEVELOPMENT OF ATOMIC POWER ENGINEERING

[Article by Academician of the Ukrainian Academy of Sciences L. T. Shvets, Doctor of Economic Sciences G. B. Yatsenko and Candidate of Technical Sciences Ye. I. Baratov, Kiev, Vsesoyuznyi Nauchnyi Tsentr Ukrainy, Kiev, Ukrainian SSR, No. 9, 1971, pp. 10-12.]

During the Ninth Five-Year Plan, the accelerated rate and increased amount of electric power generation will remain among the most important tasks of the Soviet economy. The objectives of the 25th CPSU Congress envisaged that between 1971 and 1975 new electric power generating capacity of 65-67 million kilowatts will be put into operation. Electric power will also develop widely in the Ukrainian SSR. By the end of the current five-year plan, electric power output in the republic will rise to 200 billion kilowatt hours, that is, by 45 percent in comparison with the last year's figure.

The electric power base of our country, as the Center of thermal power plants, will be enlarged chiefly by construction of the new capacity will be installed in atomic power plants. In the long run, atomic power will become the basic source of the increase in power generating capacity. All this poses a whole host of theoretical and practical problems which require arduous investigation. This article is devoted to examining the future prospects of atomic energy in the Ukrainian SSR.

The erection of power plants which could ensure growth of the productive forces in any economic region entails considerable expenditures to national economy. In terms of fixed industrial capital the fuel power sectors of the large republics account one-third of the republic's total industrial expenditures and more than 14 percent of its workers. The transportation of fuel accounts for 35 percent of the total freight handling of the republic. Thus, it is not at all surprising that the share of expenditures on thermal and electric power and fuel in the total production costs of the power-intensive industrial

Ye. I. Baratov, Kiev, Ukrainian SSR, No. 9, 1971, pp. 10-12.

1/2 029 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--USE OF MAGNETIC METALLOGRAPHY DURING A STUDY OF THE STRUCTURE OF
DEFORMED AUSTENITIC STAINLESS STEELS -U-
AUTHOR-(03)-YEREMIN, N.I., ZHURGOV, A.P., BARATS, N.K. *B*
COUNTRY OF INFO--USSR
SOURCE--ZAVOD. LAB. 1970, 36(2), 189-91
DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS
TOPIC TAGS--AUSTENITIC STEEL, STAINLESS STEEL, METALLOGRAPHY, ALLOY
DESIGNATION, PLASTIC DEFORMATION, MICROSCOPY, X RAY
TECHNIQUE/(U)KH18N10T STAINLESS STEEL, (U)OKH18N10T STAINLESS STEEL,
(U)000KH18N10T STAINLESS STEEL

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1993/0344 STEP NJ--UR/0032/70/036/002/0189/0191
CIRC ACCESSION NO--AP0113270
UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0113270

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FINELY DISPERSED, SMALL PARTICLES OF THE ALPHA SUB2 PHASE, FORMED IN AUSTENITIC STEELS BY PLASTIC DEFORMATION AT TEMPS. GREATER THAN M SUB3, CAN OFTEN BE STUDIED ONLY WITH DIFFICULTY BY CONVENTIONAL METALLOGRAPHIC OR X RAY METHODS, OWING TO THE SMALL SIZE AND AMT. OF THE PPTS. HOWEVER, THE FERROMAGNETIC ALPHA SUB2 PHASE CAN BE EXAMD. BY MAGNETIC METALLOGRAPHY. HERE THE ELECTROPOLISHED SPECIMENS ARE COVERED WITH A UNIFORM FILM OF CHEM. PREPD., COLLOIDAL, 1-DOMAIN MAGNETIC PARTICLES SUSPENDED IN AN AQ. SOLN. OF A SURFACE ACTIVE AGENT. GLYCEROL IS ADDED TO REDUCE EVAPN. AND IMPROVE THE OPTICAL PROPERTIES OF THE SUSPENSION. THEN THE SPECIMEN SURFACE IS WASHED TO REMOVE PARTICLES NOT ATTACHED MAGNETICALLY, AND EXAMD. OR PHOTOGRAPHED UNDER A METALLOGRAPHIC MICROSCOPE. THE METHOD WAS APPLIED IN STUDYING THE INCIDENCE AND DISTRIBUTION OF DEFORMATION MARTENSITE IN SPECIMENS OF GOST GRADE 000KH18NIOT, OKH18NIOT, AND KH18NIOT STEELS (WHICH DIFFERED IN THE DEGREE OF AUSTENITE STABILITY) SUBJECTED TO PLASTIC DEFORMATION AT VARIOUS TEMPS.

UNCLASSIFIED

Acc. Nr.:

AP0046867

Ref. Code:

URC122

USSR

UDC 621.787.4:621.921.34

REZNIKOV, A. N., Professor, Director Technical Sciences, BARATS,
YA. I., Engineer

"Use of Diamond Burnishing for Finishing and Strengthening"

Moscow, Vestnik Mashinostroyeniya, No 1, 1970, pp 15-17

Abstract: The use of diamond burnishing of surfaces for finishing and strengthening purposes is described. Data are presented on theoretical investigation of the process. The shape of a working tool surface (diamond), at equal pressure in the zone of burnishing, weakly affects the surface roughness and its micro-hardness, and at the same time substantially affects the magnitude and distribution of residual stresses in the surface layer of the machined piece. Analytical expression, for the maximum temperature generated at the contact surface is derived by solving a system of two equations.

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Reel/Frame

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$$\theta_{\max} = \frac{4 P_z a_0 (\tau_m + L)}{J l \Delta \lambda_0 \left[\frac{4 \sqrt{2} a_0 \lambda_a}{\Delta v \lambda_0} (\tau_0 + L) + 1 \right]} \quad (1)$$

where P_z is the peripheral force in kg; a_0 is the temperature conductivity coefficient of the material in cm^2/sec ; λ_0 and λ_a are heat conductivity coefficients of the material and tool, J is the reciprocal of mechanical equivalent of heat in $\text{cal}/(\text{cm} \times \text{sec} \times ^\circ\text{C})$; l is the radius of contact surface in cm; Δ is the depth of penetration of plastic deformations at the contact surface center in cm; and v is the working speed in cm/sec . The first equation is established under the assumption that the temperature at any point on contact surface, which is determined from the side of working piece is equal to the temperature determined from the side of the tool. The second equation is established in the form of a thermal balance between the total heat quantity absorbed by the tool and the piece. Temperature distribution at various points on contact surface is presented in a graph for different values of non dimensional parameter $p-2a/vl$. It shows that with decreasing p (increase in working speed v) the contact

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AP0046867

surface temperature increases, while the most heated sections located behind the center, are moving toward the contact surface extremity. A comparison of analytical and experimental data on the dependence of contact surface maximum temperature upon the working speed and radius of the tool, which is presented in a graph, shows a good agreement. The application of this process for finishing and strengthening of roll bearing elements increased 10 times the labor productivity in comparison with other methods. The economy of this process is stressed. Original article has 3 figures and 3 formulas.

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19790187

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USSR

PARAYEV, A. B., Chair of Wave and Gas Dynamics, Moscow University

"The Transverse Impact On a String Possessing Flexural Rigidity (Elastic Case)"

Vestnik Moskovskogo universiteta, Matematik, mekhanika, No 6, 1970, pp 85-92

Abstract: The transverse impact on thin ropes and wires is considered, with the rigidity of the ropes and wires taken into account. By linearization, the problem is reduced to the problems of the bending of two beams of variable length. The solution is obtained in analytic form through the replacement of the constant velocity of the transverse wave by an approximate variable quantity.

Tabulated data obtained by the use of a computer are given for impact velocities of 50, 75, 100, 125 and 150 meters per second and show that the centrifugal forces are low by comparison with inertial forces.

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USSR

UDC 669.15:539.4

BERNSHTEYN, M.L., LAPTEV, D.V. and BARAZ, A.R., Moscow Institute of Steels and Alloys

"Effect of Deformation Temperature on the Austenitic Properties of Nickel Steels"

Sverdlovsk, Fizika Metallov i Metallovadeniye, Vol 31, No 2, Feb 71, pp 414-415

Abstract: A study was made of the properties of austenite in nickel steels subjected to deformation at different temperatures. The nickel steels investigated were 40N23, 60N19, and 80N18. The degree of deformation for initial diameters of 3.5 and 2.9 mm was 40 and 20%, respectively. The following temperatures were selected for deformation: 900-950°C (high-temperature mechanical treatment) and 550°C (low-temperature mechanical treatment). Data obtained from the study showed that for HTMT the redistribution of carbon does not enter into later stages of segregation formation, not forming precipitations of the second phase, since the lattice parameter of austenite after quenching and HTMT is practically the same for all the studied alloys. In the case of LTMT the picture is different. The austenite lattice parameter is smaller after quenching and HTMT. This is a direct indication of the precipitation of carbon from the solid solution in the form of dispersed carbides. In the past the authors observed that after LTMT the carbides precipitated into dislocations.

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USSR

BERNSHTEYN, M.L., et al, Sverdlovsk, Fizika Metallov i Metallovadeniye, Vol 31
No 2, Feb 71, pp 414-415

Smaller values of the lattice parameter were observed for alloy 60Ni19 in
comparison with alloy 40Ni23, which was apparently associated with the pre-
vailing influence of nickel. 2 figures, 2 tables, 5 bibliographical references.

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USSR

UDC 612.13

BARAZ, L. A., VESELOVA, YE. S., MESHCHERSKIY, YE. L., and KHAYUTIN, V. M.,
Laboratory of Circulatory Control and Biophysics, Institute of Normal and
Pathological Physiology, Academy of Medical Sciences USSR, Moscow

"Blood Flow Through Forearm Muscles in Man After Static Exercises of
Increasing Load"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 2,
1973, pp 307-314

Abstract: Plethysmographic investigations revealed that during performance of work on a wrist ergometer, changes in the blood flow through the forearm muscles proceed in two stages. With work load increasing up to 20% of the maximum possible voluntary effort, the peak blood flow during the contraction increases considerably, the reactive hyperemia following relaxation is of brief duration, and thus the total additional blood flow during recovery is very small. With work load increasing up to 50% of the maximum possible, the peak blood flow increases at a considerably reduced rate, the reactive hyperemia becomes protracted, and the additional blood flow during recovery reaches high proportions of the total. Thus, the work load of 20% of the maximum possible appears to mark the critical point below which blood flow is adequate and above which blood

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USSR

BARAZ, L. A., et al., Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenov,
Vol 59, No 2, 1973, pp 307-314

supply becomes inadequate, and the accumulating metabolites (representing a "blood debt") significantly reduce the vasotonus and thus increase the diameter of the blood vessels and the total capacity of the vascular bed in the working area.

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1/2 026 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--STABILITY OF THE STRUCTURE AND STRESS RELAXATION IN CYLINDRICAL
STEEL SPRINGS -U-
AUTHOR-(02)-BARAZ, V.R., ZUBOV, V.YA. *B*
COUNTRY OF INFO--USSR
SOURCE--IZVEST. V.U.Z., CHERNAYA MET., 1970, (2), 126-128
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--SPRING STEEL, TEMPERING, STRESS RELAXATION, STEEL QUENCHING,
SILICON STEEL, CHROMIUM STEEL, VANADIUM STEEL, MANGANESE STEEL, COLD
WORKING, METAL HEAT TREATMENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/0541 STEP NO--UR/0148/70/000/002/0126/0128
CIRC ACCESSION NO--AP0124236
UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0124236

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BEHAVIOUR OF SPECIALLY STRENGTHENED C AND ALLOY STEEL SPRINGS WAS STUDIED UNDER CONDITIONS OF STRESS RELAXATION AS A FUNCTION OF THE CHEMICAL COMPOSITION AND METHOD OF PREPARATION (COLD WORKING, QUENCHING AND TEMPERING, ETC.). SAMPLES OF SI, CR STEEL EXHIBITED A MUCH HIGHER RELAXATION RESISTANCE THAN CR, V AND MN STEELS. THE LEVEL OF RELAXATION RESISTANCE WAS IN GENERAL SUBSTANTIALLY INCREASED BY QUENCHING AND TEMPERING.

UNCLASSIFIED

USSR

UDC 669.71.046.44

KHODOROV, YE. I., BARBAKADZE, L. G.

"Cooling Alumina Cakes in Drum Coolers"

Tr. Vses. n.-i. i proyekt. in-ta alyumin., magn. i elektrod. prom-sti (Works of the All-Union Scientific Research and Planning and Design Institute of Aluminum, Magnesium and Electrode Industry), 1970, No 70, pp 72-81 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G125)

Translation: A method of thermal calculation of drum coolers for cooling alumina cakes is discussed, and research data for the experimental coefficients are processed. The calculated analysis of operation of a specific drum cooler is performed as a function of the variation of the basic defining factors. There are 2 illustrations and 2 tables.

USSR

UDC: 8.74

BARBAKADZE, M. M.

"An Interpreting System for a Russian-Georgian Machine Translation Algorithm (BESM-4)"

Tr. In-t sistem upr. AN GruzSSR (Works of the Institute of Control Systems, Academy of Sciences of the Georgian SSR), 1971, 9, No 3, pp 78-111 (from RZh-Kibernetika, No 1, Jan 72, Abstract No. 1V1063)

Translation: A complete description is given of a formalized language for recording a machine translation algorithm and an interpreting system is described for a Russian-Georgian machine translation algorithm. This system converts recording of the algorithm in the formalized language to the BESM-4 language.

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USSR

UDC 576.851.71.097.5

BARBAN, P. S., and PANTYUKHINA, A. N., Perm' Institute of Vaccines and Sera

"Preparation of Incomplete Fluorescent Antibodies Against Rickettsia prowazekii"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 4, 1973, pp 16-20

Abstract: One of the major complications encountered in immunofluorescent work is that of nonspecific fluorescence. In order to determine whether the technique could be improved by the use of monovalent antibody fragments, studies were conducted on equine antiserum against Rickettsia prowazekii from which monovalent fragments were obtained by papain digestion. The antibody-containing fraction was obtained by two precipitations with ammonium sulfate (to 34% saturation, pH 7.1). The resultant immunoglobulins were subjected to pepsin and papain digestion and the products, along with the whole antibodies, were labeled with fluorescein isothiocyanate. The antisera, isolated immunoglobulins, and products of enzymatic digestion were tested for antibody activity serologically. The results showed that pepsin completely destroyed antibody activity, while papain digestion yielded preparations that had lost complement fixing and

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USSR

BARBAN, P. S. and PANTYUKHINA, A. N., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 4, 1973, pp 16-20

hemagglutinating activities, but did bind the antigen as indicated by passive hemagglutination and inhibition of complement binding. Immunofluorescent studies showed that the active product of papain digestion gave higher staining titers and less nonspecific fluorescence than undigested immunoglobulins. TLC on Sephadex G-200 showed that the active papain product had a molecular weight of about 53,000 \pm 1750, and a sedimentation coefficient of 3.5 S.

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USSR

UDC 576.851.71:576.8.097.34

BARBAN, P. S., and MIRSKIY, V. Ya., Laboratory of Endemic Rickettsioses, Perm' Scientific Research Institute of Vaccines and Sera

"Immunofluorescent Reaction of Rickettsia Microagglutination. Report I. Detection of Antibodies to Rickettsia Prowazeki and Mooseri"

Moscow, Laboratornoye Delo, No 1, 1973, pp 28-30

Abstract: An improved method was tested on 516 samples of sera immune to Rickettsia prowazeki and mooseri, obtained from experimentally infected horses, rabbits, and guinea pigs. The luminescent test reagent is prepared by tagging corpuscular antigens of both rickettsiae with fluorescein isothiocyanate and subjecting the suspension to lyophilization. Prior to use, the reagent is diluted with distilled water. The serum to be tested is diluted in progressive proportions, and a drop of each plus a drop of control sera (check for specificity) and a drop of the antigen (check for spontaneous agglutination) are placed on a glass plate with suitable depressions. A drop of the test reagent is added to each sample and gently stirred. The glass plate, enclosed in a humid container, is incubated at 37°C for 1 hr. The samples are then air-dried and examined microscopically. Bright green rickettsiae are clearly visible against a black background. The result is negative when individual rickettsiae are dispersed throughout the visual field. The result is positive

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USSR

BARBAN, P. S. and MIRSKIY, V. Ya., Laboratornoye Delo, No 1, 1973, pp 28-30

when rickettsial agglutinates of intensity 4+ and 3+ are observed. At a lower intensity, any conclusion as to the specificity of the agglutinin is doubtful. The improved method yielded correct results in all 516 serum samples and proved more sensitive than the standard agglutination reaction and the complement-fixation reaction. Thus, the improved method is recommended for differential diagnosis of Rickettsia prowazeki and mooseri because it is accurate, fast (about 2 hrs), and simple.

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USSR

UDC: 681.333:621.391

KRUPITSKIY, E. I., RIZKIN, A. A., ~~BARBANET, I. S.~~, Leningrad Electrical Engineering Institute of Communications

"A Holographic Optical Correlator"

USSR Author's Certificate No 311282, filed 16 Mar 70, published 25 Oct 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 7, Jul 72, Abstract No 7B474 P)

Translation: A number of devices are known which realize the principle of optical correlation by using a holographic mask. However, all known schemes use two lenses which realize direct and inverse Fourier transformation of the initial function, which procedure complicates the design and increases the overall dimensions of the device. The proposed holographic optical correlator acts as the main element of optico-electronic computing devices which realizes both elementary (addition, multiplication) and integral operations on complex functions given in the region of two variables. In the special case in which the functions operated upon are equal, the holographic optical correlator may be used as a matched optical filtration device for detecting and recognizing images. V. F.

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USSR

UDC 669.716:621.785.3

BARBANEL', R. I., and TSURKOV, S. L.

"Annealing in a Controllable Atmosphere of Semifinished Sheet Products of Aluminum Alloys"

Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970, pp 122-129, resume

Translation: Problems of reaction of the furnace atmosphere with the surface of sheets of aluminum alloys are discussed and requirements for the composition of the atmosphere are indicated. Methods of producing controllable atmospheres, the annealing technology, and problems of the equipment for annealing in a controllable atmosphere are elucidated. Results of the use of a controllable atmosphere in annealing rolls of aluminum alloys are presented. Four figures, one table, eight bibliographic references.

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USSR

UDC: 621.391.81

BARBANEL', Ye. S., SHCHELKUNOV, K. N.

"On the Feasibility of Using Composite Signals in Optical Communications Systems"

V sb. Materialy Nauch.-tekhn. konf. Leningr. elektrotekhn. in-t svyazi. Vyp. 1 (Materials of the Scientific and Technical Conference of Leningrad Electrical Engineering Institute of Communications--collection of works, No 1), Leningrad, 1971, pp 99-104 (from RZh-Radiotekhnika, No 3, Mar 72, Abstract No 3A73)

Translation: The possibility of using composite signals in optical communications systems is considered, and an optimum processing algorithm is constructed for a certain type of pulse train (for a binary system). This algorithm is compared for interference immunity with an algorithm in which simple signals are used. On the basis of the formulas derived, graphs are constructed and conclusions are drawn on the advantages of systems with composite signals. Resumé.

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USSR

UDC 621.385:530.145.6:623

BARBANEL, Ye. S., SHCHELKUNOV, K. N.

"Determining the Noise Immunity of the Heterodyne Method of Receiving an Optical Signal in the Presence of a Turbulent Atmosphere"

Materialy nauchno-tekhn. konferentsii. Leningr. elektrotekhn. in-t svyazi. Vyp. 2 (Material of the Scientific and Technical Conference. Leningrad Electrotechnical Communications Institute. Vyp. 2), Leningrad, 1970, pp 81-85 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8 D397)

Translation: A method is proposed for calculating the error of heterodyne reception in an optical communications system considering the turbulent properties of the path. The final formula contains a sign-variable series the number of terms of which is determined by the accuracy of the calculation. Graphs are presented which permit quantitative estimation of the effect of turbulence on the signal amplitude.

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USSR

UDC 616.12-008.331.1-092.9-08-039.71:612.273.2.017

MEYERSON, F. Z., ~~BARBARASH, N. A.~~ and DAVYDOVA, T. M., Laboratory of Experimental Cardiology, Institute of Normal and Pathological Physiology, Academy of Medical Sciences USSR, and Chair of Normal Physiology, Kemerovo Medical Institute

"Preliminary Adaptation to Altitude Hypoxia as a Means of Preventing DOCA-Salt Hypertension in Rats"

Moscow, Kardiologiya, No 7, 1971, pp 14-22

Abstract: In one series of experiments, rats were exposed to intermittent hypoxia by being kept in a pressure chamber 6 hours daily for 48 days at simulated altitudes that were gradually increased from 1,000 m to 5,500 m. In another series, rats were exposed to natural hypoxia for 71 days continuously in a place situated 1,650 m above sea level. After 16 to 21 days DOCA-salt hypertension was induced by unilateral nephrectomy, substitution of a 1% sodium chloride solution for drinking water, and two subcutaneous implantations of DOCA powder. Preliminary adaptation to intermittent altitude hypoxia was found to have a definite prophylactic effect on the experimentally induced hypertension as shown by the fact that the elevation of pressure in the adapted animals was one-half that in the control. The results of exposure to continuous natural hypoxia were inconclusive.

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USSR

UDC: 612.6.02:612.7-019

BARBARASH, N. A., Chair of Normal Physiology, Kemerova Medical Institute

"Forty Days' Survival of a Homografted Extremity in a Dog"

Moscow, Eksperimental'naya Khirurgiya i Anesteziologiya, No 6, Nov/Dec 70, pp 36-39

Abstract: In 1 of 7 dogs that received a homografted hind paw and daily intramuscular injections of cortisone and penicillin, the transplant survived 40 days as compared with 17 to 30 days in the other animals. The condition of the exceptional dog remained satisfactory for 28 days, after which the temperature of the transplant began to drop and necrotic changes in the skin appeared. The muscles of the transplant remained electrically excitable until the 35th day. The cause of the animal's death on the 40th day was meningoencephalitis. The comparatively long survival time of the transplanted extremity is attributed to the antigenic similarity between the recipient and donor and to the possible inhibitory effect of cortisone on the animal's immunological mechanisms.

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USSR

UDC 616.12-008.331.1.616-001.18

MEYERSON, F. Z., BARBARASH, N. A., DVURECHENSKAYA, G. Ya., and GORBUNOVA, L. A., Institute of Normal and Pathological Physiology, Academy of Medical Sciences USSR, and Kemerovo Medical Institute, Kemerovo

"Effect of Preliminary Adaptation to Cold on the Development of Experimental Hypertension"

Moscow, Doklady Akademii Nauk SSSR, Vol 210, No 5, 1973, pp 1,243-1,245

Abstract: It had been established in earlier work that adaptation of animals to altitude hypoxia on intermittent exposure inhibited the development of hypertension produced by the combined action of NaCl and desoxycorticosterone (DPCS). Experiments conducted on rats in this instance showed that adaptation to cold had a similar effect in inhibiting the development of salt-DOCS hypertension. Adaptation to cold was carried out by exposing the rats to a temperature of 0-4° for 6 hrs per day during 110 days. Salt-DOCS hypertension was induced by implanting to the animals 50 mg/100 g DOCS subcutaneously seven days after a nephrectomy on the left side, repeating the implantation after another seven days, and giving to the animals a 1% NaCl solution to drink instead of ordinary water. The arterial pressure of experimental

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USSR

MEYERSON, F. Z., et al., Doklady Akademii Nauk SSSR, Vol 210, No 5, 1973, pp 1,243-1,245

animals adapted to cold and treated with NaCl-DOCS increased briefly to the same level as that of unadapted animals in which hypertension was induced with NaCl and DOCS, but then dropped back to normal, while that of the control animals continued to increase. During the period following the first two weeks of the experiment, in which the arterial pressure of the cold-adapted animals was substantially lower than that of unadapted animals, the unadapted animals with NaCl-DOCS hypertension drank much more NaCl solution than the animals adapted to cold. The retention of Na in the aorta wall and the pressure effect of noradrenaline were lower for adapted than unadapted animals, while no difference in the blood-pressure lowering action of acetylcholine was observed. (Submitted by Academician V. N. Chernigovskiy, 15 Dec 72)

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USSR

UDC 621.3.044.3.001.3

BARBAROVICH, Yu. K., Engineer

"Computation of Stresses in Magnetic Stamping"

Moscow, Elektrotehnika, No. 7, 1971, pp 45-49

Abstract: In the new system of magnetic stamping, advantage is taken of the fact that modern electronic techniques can concentrate powerful magnetic pulses in a small space and thus plastically deform the metal. To simplify the computations, the lengths of the stamped part and of the inductor generating the magnetic field are considered infinite, and the magnetic field is considered to be constant throughout the gap between the inductor and the part. The applied stress is also assumed to be uniform and directed normal to the part surface. Beginning with the Maxwell equations, the author computes the volume ponderomotive forces on the detail part; tangential stresses are not considered, however. To illustrate the method of the calculations, the example of a multi-turn single-layer cylindrical inductor with a conducting cylinder as a core and the part to be deformed, is used. Calculations are also made for the pressure exerted by the edge effect of the magnetic field.

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Acc. Nr: **AP0049520**

Abstracting Service:
METALS ABST.

3/70

Ref. Code:

UR0226

B

54 0038 Using the Energy of a Strong Pulsed Magnetic Field for Pressing Powders. Yu. K. Barbarovich. Poroshkovaya Met., Oct. 1969, (10), 24-31 [in Russian].

A method of using the energy of a strong pulsed magnetic field for pressing metal powders is described, and a practical example given for the case of a W moulding. The principle of the method is that of a 'magnetic hammer' actuated by a condenser battery with a low internal inductance. The method may also be adapted for the extrusion of thin-walled metal pipes. 7 ref.—G. A.

ALS

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REEL/FRA
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USSR

UDC: 681.2.083:531.787.913:531.768

BARBAS, I. G., ZAKHAROV, V. N., ITIN, M. Ye., KRUTIKOV, I. A.

"Use of Semiconductor Strain Gauges for Measuring Accelerations"

Materialy Yubileyn. nauchno-tekhn. konferentsii Dnepropetr. in-ta inzh. Zh.-d. transp. (Materials of the Jubilee Scientific and Technical Conference of the Dnepropetrovsk Institute of Railway Transportation Engineers), Dnepropetrovsk, 1970, p 266 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 11, Nov 70, Abstract No 11.32.448)

Translation: The authors present the design and construction of an acceleration pickup in which semiconductor strain-gauge resistors were used as the sensing elements. The pickup can be used to measure the acceleration of processes with frequencies ranging from 0 to 200 Hz and amplitudes of up to 50 *g* (*g* is the acceleration due to gravity). Consideration is given to the possibility of introducing critical damping of the elastic element of the pickup by various methods, as well as using electrical damping in the amplification channels. The suitability of the given pickup for measuring accelerations of the various elements of rolling stock was checked out on test runs.

1/1

USSR

UDC 681.3

KUZ'MIN, I. V., BARBASH, I. P., TRUKHIN, G. P.

"Optimization of the Structure of a Logic Device"

Tekhn. Kibernetika. Vyp. 8 [Engineering Cybernetics, No 8 -- Collection of Works], Kiev, 1970, pp 55-66, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V578 by V. Mikheyev).

Translation: A mathematical model is produced of the structure of a logic device for realization of any Boolean function of k variables in the logic bases AND-NOT (OR-NOT) in the form

$$f(x_1, x_2, \dots, x_k) = x_1 \cdot f(1, x_2, \dots, x_k) + \bar{x}_1 \cdot f(0, x_2, \dots, x_k),$$

$$f(x_1, x_2, \dots, x_k) = x_1 + f(1, x_2, \dots, x_k) + \bar{x}_1 + f(0, x_2, \dots, x_k).$$

The optimization of a logic device with mixed structure is performed with and without consideration of the load limitations of the NAND (NOR) logic elements. It is shown that in both cases there is a unique point, placement of an adjustment unit at which leads to minimum cost of the logic device with fixed number of variables.

1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--KINETICS OF ELECTRODE REACTIONS IN AN IODINE, IODIDE SYSTEM. II -U-
AUTHOR--(03)-POVAROV, YU.M., BARBASHEVA, I.YE., LUKOVTSSEV, P.D.
COUNTRY OF INFO--USSR
SOURCE--ELEKTROKIMIYA 1970, 6(3), 306-11
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHEMICAL REACTION KINETICS, IODINE, CHEMICAL REACTION RATE,
CHEMICAL REACTION MECHANISM, PLATINUM ELECTRODE, CHEMICAL REDUCTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FAME--1994/1864 STEP NO--UR/0364/70/006/003/0306/0311
CIRC ACCESSION NO--AP0115683
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0115683

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCE OF THE OXIDN. AND REDN. RATES IN THE SYSTEM I SUB2-I PRIME NEGATIVE AT 25DEGREES ON PT ELECTRODES AS A FUNCTION OF THE CONCNS. OF I PRIME NEGATIVE AND I SUB2 WAS DETD. A 5 STEP OXIDN. REDN. MECHANISM IS PROPOSED AND THE RATE CONSTS. WERE COMPUTED.

FACILITY: INST. ELEKTROKHM., MOSCOW, USSR.

UNCLASSIFIED

1/2 007 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--IODINE ELECTROREDUCTION ON A PLATINUM ELECTRODE -U-
AUTHOR--(03)-BARBASHEVA, I.YE., POVAROV, YU.M. LUKOVITSEV, P.D.
COUNTRY OF INFO--USSR
SOURCE--ELEKTROKHIMIYA 1970, 6(2), 175-81
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ELECTROCHEMICAL REDUCTION, IODINE, PLATINUM ELECTRODE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1998/1146 STEP NO--UR/0364/70/006/002/0175/0181
CIRC ACCESSION NO--AP0121705
UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121705

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ELECTROREDN. OF I AT THE ROTATING PT ELECTRODE IN A SOLN. OF KL PLUS I SUB2 WAS STUDIED IN THE PRESENCE OF EXCESS NA SUB2 SO SUB4. THE LIMITING CATHODIC CURRENT I SUBL GRADUALLY DECREASES IN TIME; THIS MAY BE RELATED TO THE DECREASE IN THE NO. OF ACTIVE SITES ON THE ELECTRODE SURFACE. THE LIMITING CURRENT INCREASES LINEARLY WITH THE SQUARE ROOT OF V (V IS ROTATIONAL VELOCITY IN RPM) AT LOW CURRENTS. THE I SUBL FOR AN ACTIVATED ELECTRODE IS PRACTICALLY INDEPENDENT OF THE MICROROUGHNESS OF THE ELECTRODE OVER THE ROUGHNESS FACTOR RANGE FROM 1 TO 300. FACILITY: INST. ELEKTROKHM., MOSCOW, USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--KINETICS OF ELECTRODE REACTIONS IN AN IODINE IODIDE SYSTEM. I -U-
AUTHOR--(03)-BARBASHEVA, I.YE., POVAROV, YU.M., LUKOVTSSEV, P.D.
COUNTRY OF INFO--USSR *B*
SOURCE--ELEKTROKIMIYA 1970, 6(1), 92-7
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ELECTRODE REACTION, IODINE, PLATINUM ELECTRODE, REACTION KINETICS

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/0465 STEP NO--UR/0364/70/006/001/0092/0097
CIRC ACCESSION NO--AP0107071
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0107071

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS OF THE ANODIC AND CATHODIC REACTIONS IN THE I SUB2-I PRIME NEGATIVE SYSTEM WAS STUDIED AT 25DEGREES BY MEASURING THE POLARIZATION AT A PT ROTATING DISK ELECTRODE (1 MM DIAM.) MOUNTED IN TEFLON (8 MM DIAM.). THE SOLN. CONTAINED 0.2 N KI PLUS 10 PRIME NEGATIVE2. THE CATHODIC CURVES SHOWED DIFFUSION LIMITATIONS, WHEREAS NO LIMITING DIFFUSION CURRENT WAS OBSERVED ANODICALLY. THE ANODIC REACTION WAS 1ST ORDER IN I PRIME NEGATIVE, AND THE CATHODIC REACTION WAS 1ST ORDER IN I SUB3 PRIME NEGATIVE. THE UNSYM. ANODIC AND CATHODIC PARTIAL CURRENTS WERE PLOTTED FOR CATHODIC POTENTIALS TO 50 MV AND ANODIC POTENTIALS TO 200 MV. NO LINEAR TAFEL REGION WAS OBSERVED. BECAUSE NO FILM WAS FORMED ANODICALLY AND BECAUSE THE ANODIC REACTION PROCEEDED AT A POTENTIAL 83 MV MORE NEG. THAN THE REACTION (1) 21 PRIME NEGATIVE YIELDS I SUB2 PLUS 2E, THE MOST LIKELY OVERALL ANODIC REACTION WAS 31 PRIME NEGATIVE YIELDS I SUB3 PRIME NEGATIVE PLUS 2E, WHICH PROBABLY INVOLVED SOME INTERMEDIATE BECAUSE THE SUM OF THE ANODIC AND CATHODIC TRANSFER COEFF. DID NOT EQUAL 1. AT HIGH I PRIME NEGATIVE CONC. AND LARGE POLARIZATION, REACTION (1) ALSO OCCURRED; UNDER THESE CONDITIONS THE ANODIC REACTION WAS CONTROLLED BY MIXED KINETICS. FACILITY: INST. ELEKTROKHM., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 639.5:536.55

BARBASHIN, Ye. F., PUL'KIS, K. S., NIKOLAYENKO, V. A., Omsk

"Determination of Fields of Temperatures of Turbine Wheels and Blades by Indicators of Irradiated Diamond"

Kiev, Problemy Prochnosti, No 8, Aug 73, pp 117-119.

Abstract: A method is described for thermometry of gas-turbine engine parts using indicators of irradiated diamond without current taps. The method is based on the property of the crystalline diamond to increase the volume of the crystalline lattice when bombarded by high energy particles and gradual recovery of the initial volume upon heating. The method can be used for thermometry of turbine wheels and blades in the 130-1200° C interval without placement of current taps or modification of the engine design.

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USSR

UDC 517.934:517.966

BARRASHINA, YE. YE., Institute of Mathematics, Academy of Sciences Belorussian SSR

"On the Theory of Necessary Conditions for Optimality of the Second Order"

Minsk, Differentsial'nyye Uravneniya, Vol 8, No 5, May 72, pp 751-761

Abstract: Using a control variation packet, the author obtains the necessary conditions for the optimality of singular and nonsingular control in the case of a closed region. The case of a piecewise smooth and a smooth boundary is considered. The author thanks R. GABASOV for the suggested idea and for guiding the work.

1/1

1/2 016 UNCLASSIFIED PROCESSING DATE 20NOV 70
TITLE--QUASICLASSICAL APPROXIMATION IN QUANTUM FIELD THEORY WITH THE
STATIC NUCLEON -U-
AUTHOR-(02)-BARBASHOV, G.M., PERVUSHIN, V.N. **B**
COUNTRY OF INFO--USSR
SOURCE--TEORETICHESKAYA I MATEMATICHESKAYA FIZIKA, 1970, VOL 3, NR 3, PP
320-325
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--QUANTUM FIELD THEORY, NUCLEON INTERACTION, MESON INTERACTION,
NUCLEAR PHYSICS
CENTRAL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/1251 STEP NO--UR/0696/70/003/003/0320/0325
CIRC ACCESSION NO--AP0124902
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0124902

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FUNCTIONAL INTEGRATION TECHNIQUE IS USED FOR THE SOLUTION OF THE SCATTERING PROBLEM IN QUANTUM FIELD THEORY WITH THE STATIC NUCLEON AND CHARGED MESONS, UNDER THE CONDITION THAT THE CONSTANT $H-G$ IS SMALL. IN THE SAME QUASICLASSICAL APPROXIMATION DISENTANGLING OF THE τ SUBI MATRICES IS PERFORMED. THE SOLUTION IS REPRESENTED IN THE FORM OF A CERTAIN MAIN TERM PROPORTIONAL TO THE LARGE CONSTANT G PRIME²- H PLUS THE CORRECTIONS TO THIS TERM WITH THE RESPECT TO $H-G$. FACILITY: OB'YEDINENNYI INSTITUT YADERNYKH ISSLEDOVANIY.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--EIKKAL APPROXIMATION IN QUANTUM FIELD THEORY -U-
AUTHOR--(04)-BARBASHOV, B.M., KULESHOV, S.P., MATVEYEV, V.A., SISAKYAN,
A.N.
CCUNTRY OF INFO--USSR
SOURCE--TEORETICHESKAYA I MATEMATICHESKAYA FIZIKA, 1970, VOL 3, NR 3, PP
342-352
DATE PUBLISHED--70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--QUANTUM FIELD THEORY, QUANTUM MECHANICS, SCATTERING AMPLITUDE,
FUNCTIONAL EQUATION
CENTRCL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1315 STEP NO--UR/0646/70/003/003/0342/0352
CIRC ACCESSION NU--AP0124966
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0124966

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ASYMPTOTIC BEHAVIOR OF THE SCATTERING AMPLITUDE AT HIGH ENERGIES AND FIXED MOMENTUM TRANSFERS IS INVESTIGATED IN THE (FORMULA SHOWN ON MICROFICHE): MODEL BY MEANS OF THE FUNCTIONAL INTEGRATION METHOD IN QUANTUM FIELD THEORY. FACILITY: OB'YEDINENNYI INSTITUT. FACILITY: YADERNYKH ISSLEDOVANIY.

UNCLASSIFIED

USSR

UDC 619:616.988.43-084.47

ANTONYUK, V. P., KRUGLIKOV, B. A., ~~BARRASHOV, V. P.~~, BASHKATOV, S. F.,
and MAKAREVICH, F. G., State Scientific Control Institute of Veterinary
Preparations

"Significance of Specific Prophylaxis of Foot-and-Mouth Disease"

Moscow, Veterinariya, No 9, 1971, pp 46-48

Abstract: Experience gained in the USSR and other countries proved that planned regular vaccination and revaccination (when used together with other veterinary sanitation measures) play an important role in the control of foot-and-mouth disease (FMD), particularly since the immunizing activity of the vaccine has been enhanced by the addition of saponin. Planned FMD vaccination was begun in the USSR in 1954, when 12.6 million head of cattle in zones of epizootic outbreaks of the disease were immunized. More than 132 million animals were vaccinated in 1969. As a result, the disease and its foci have been almost completely eradicated in the RSFSR, Ukraine, Belorussia, and Moldavia. Vaccination and revaccination are of particular importance in the republics of Central Asia, Transcaucasus, Northern Caucasus, and some oblasts of Kazakhstan, where the system of long cattle drives and the possible mixing of large masses of animals makes them

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USSR

ANTONYUK, V. P., et al., Veterinariya, No 9, 1971, pp 46-48

particularly susceptible to epizootic outbreaks. An analysis of available data on immunization in the republics of Uzbekistan, Kirgizia, and Tadzhikistan reveals that vaccination there is conducted in an irregular and haphazard manner, with the result that large number of animals remain unvaccinated. It is important that a plan for the vaccination and revaccination of cattle during February-March, and again in August-September, and of smaller animals during the months of November-December, and again in April and November of the next year be adopted. Planned and complete immunization must be regarded as an important component in the measures for the eradication of FMD.

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USSR

UDC 612.172+612/76

PROKHAZKA, I., KHAVKINA, I. V., and BARBASHOVA, Z. I., Physiological Institute, Czechoslovakian SSR, Prague and Institute of Evolutionary Physiology and Biochemistry imeni I. M. Sechenov, Academy of Sciences USSR, Leningrad

"The Effect of Prolonged Hypokinesia on the Heart Muscle of Rats"

Leningrad, Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 8, Aug 73, pp 1237-1241

Abstract: The effects of 30- to 4-day hypokinesia on the heart muscle of ten white rats was investigated. Sharp weight losses were observed for the whole organism, the heart and particularly its right ventricle. A weakening of the contractile ability of the myocardium in response to rhythmic electrical impulses was seen, as well as a further weakening after 20-minute anoxia, said to indicate a loss of resistance to stress. Additionally a small deceleration of anerobic energy exchange in the ventricles was found, on the basis of lactic acid accumulation. The right ventricle showed a slowing of glycolysis and glycogenolysis, the left only slower glycogenolysis. Glycogen content in the heart muscle was unchanged. While not decisive, the disturbance of energy exchange is said to play an important role in the loss of the heat is stress resistance from prolonged limiting of movement.

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ISSR

UDC 612.74

ZHUKOV, YE. K., BARBASHOVA, Z. I., and FEDOROV, V. V., Laboratory of the Evolution of Motor Functions and Laboratory for the Study of the Resistance of the Organism, Institute of Evolutionary Physiology and Biochemistry imeni I. M. Sechenov, Academy of Sciences USSR

"The Effect of Hypokinesia on the Functional State of Skeletal Muscles"

Leningrad, Fiziologicheskii Zhurnal SSSR imeni I. M. Sechnov, Vol 57, No 9, 1971, pp 1,240-1,245

Abstract: Strict, 1-month immobilization of young rats, with only some freedom of motion allowed for the head and front paws to facilitate eating, causes a significant deterioration of the skeletal muscles. The weight of some muscles decreases 40% below the control level. The tension developed during single muscle twitches and during tetanic contractions is about 30% of the normal tension. The speed with which tension develops in a single twitch and the speed of relaxation are significantly reduced. The time required to develop maximum tension in a tetanic contraction is markedly prolonged. The threshold of excitability is considerably elevated. These changes are more pronounced in fast muscles (gastrocnemius, plantaris) than in slow muscles
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USSR

ZHUKOV, YE. K., et al., Fiziologicheskii Zhurnal SSR imeni I. M. Sechenov,
Vol 57, No 9, 1971, pp 1,240-1,245

(soleus). It is concluded that prolonged hypokinesia causes dystrophic degeneration of skeletal muscles which may be due to simple lack of activity (tenotomy), or to an absence of afferent impulses which normally stimulate the reticular formation (physiological denervation), or to inhibition of the calcium pump in the sarcoplasmic reticulum.

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USSR

UDC 612.822.1+612.273

BARRASHOVA Z. I., Laboratory for the Investigation of the Resistance of Organisms, Institute of Evolutionary Physiology and Biochemistry imeni I. M. Sechenov, Academy of Sciences USSR

"The Evolutionary Significance of Changes Occurring in the Brain Carbohydrate Metabolism in Adult Animals During Adaptation to Hypoxia"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, Vol 58, No 7, 1972, pp 1019-1025

Abstract: Mice were adapted to hypoxia by being kept in a barochamber at pressures corresponding to altitudes of 3,500 to 7,500 m or by being transferred to the Tyan-Shan Mountains. After 10-45 days of adaptation, the animals became much more resistant to sudden acute hypoxia produced through barochamber decompression to 12,500 m or through injection of a standard dose of cyanide. At the same time, utilization of glycogen increased up to 165% of the control level in the cerebral cortex and up to 283% in the spinal cord, resulting in a corresponding rise in lactate concentration. The proportion of M-subunits in the LDH isoenzyme spectrum was also significantly higher than in the control state. The results suggest that the adult organism is able to use ontogenetically and phylogenetically more ancient forms of carbohydrate metabolism during long-term adaptation to hypoxia.

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USSR

UDC 621.374.5

NEUSTROYEV, S. N., BARBASOV, V. M., PLAVSKIY, I. A., SOLOV'YEV, A. K.

"An Amplitude-Time Converter"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 5, Feb 72, Author's Certificate No 327584, Division H, filed 8 Jun 70, published 26 Jan 72, p 165

Translation: This Author's Certificate introduces a nanosecond pulse amplitude-time converter which contains an input emitter-follower, a discharge device, a storage capacitor, a discharge current stabilizer and a pulse shaper. As a distinguishing feature of the patent, the linearity and stability of the conversion factor are improved and the dynamic range of convertible amplitudes is extended by connecting the storage capacitor to the output of the emitter-follower through a series circuit made up of a differentiating stage and a charging device based on a diode-transistor switching circuit. The input of the pulse shaper is connected to the storage capacitor through a series circuit made up of a decoupling stage and a nonlinear differentiating stage.

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USSR

B UDC: 614.48"324"

BARBINOV, V.A., Lt Col Med Serv and MERKULOV, V.F., Maj Med Serv

"Wintertime Disinfection in the Field"

Moscow, Voenno-Meditsinskiy Zhurnal, No 2, 1970, pp 63-64

Abstract: The disinfection of large areas, buildings, machines, and other bulky objects presents some difficulties, especially in the winter. The gas method is unsuitable for large areas and the disinfection of houses, hospital wards, etc. requires the consumption of large amounts of gas. Aqueous solutions of disinfectants freeze, and the addition of salt poses additional problems. The use of disinfectants in powdered form is expensive and difficult in windy weather. To overcome the disadvantages of the existing methods, an apparatus consisting of a steam boiler and pistol-type device to atomize and spray aqueous solutions of disinfectants is proposed. The steam prevents the disinfectant from freezing, and by warming the objects treated, reduces the time of exposure required.

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USSR

UDC: 621.396.6.049.7

BARBOT, V. I.

"An Automatic Universal Bender for Stamping Components Under Serial Production Conditions"

V sb. Obmen opytom v radionrom-sti (Experience Pooling in the Radio Industry --collection of works), vyp. 1, Moscow, 1971, pp 66-69 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V275)

Translation: The paper describes an automatic universal bender which can be successfully used under serial production conditions. The approximate nomenclature of parts which can be made on this automatic machine is indicated. The peculiarities of the stamping units used on the machine are discussed. Author's abstract.

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Acc. Nr:

AP0036522

Ref. Code: UR 0069

PRIMARY SOURCE: Kolloidnyy Zhurnal, 1970, Vol 32, Nr 1,

no 10-16

EFFECT OF THE DISPERSE PHASE CONCENTRATION OF LYOPHOBIC SOLSON
THE DEPENDENCE OF THE COAGULATION VALUES UPON THE VALENCE
TYPE OF ELECTROLYTE, THE POTENTIAL AND THE SIZE OF COLLOIDAL
PARTICLES

B. V. Barbov, Yu. M. Glazman

Summary

The effect of the dispersed phase concentration of lyophobic sols on their coagulation by electrolytes of any valence type has been considered. The regularities found for symmetrical electrolytes are valid in all the cases studied. The stability of colloidal solutions depends on the particle size. With decreasing dispersity of the system, the coagulation values passes through a maximum if the sol volume concentration is constant. If, however, the number of disperse phase particles per unit volume remains constant, the stability of the colloidal solution diminishes monotonically. At all disperse phase concentrations the stability of lyophobic sols increases with rising potential of colloidal particles.

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19721370

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Acc. Nr:

AP0052449

Abstracting Service:
GEOPHYSICAL ABST.

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Ref. Code:

UR0455

91739y Extractive distillation. Barboi, V. M.; Garber, Yu. N.; Fel'dman, I. N. (Kiev. Tekhnol. Inst. Legk. Prom., Kiev, USSR). *Teor. Osn. Khim. Tekhnol.* 1970, 4(1), 115-18 (Russ). The effects on distillate quality by changes in temp., amt. of reflux, concn. of extractive solvent, and component ratio in binary mixts. to be sepd. were evaluated quant. from an equation derived by replacing the reflux ratio in distn. calcs. by the theoretically effective one for extractive distn. of a mixt. introduced in the vapor state, $dx_{1w}/dl = [(1 - x_{1w})\alpha_{21}/(\alpha_{21} - 1)][B_2/(t + C_2)] + [x_{1w}/(\alpha_{21} - 1)][B_1/(t + C_1)]$, and a special case of it for equimolar mixts. A , B , and C are the consts. of Antoine equation, x_{1w} is the reboiler solvent concn., t is the reboiler temp., and α_{21} the coeff. of relative volatility of the difficultly volatile component and solvent. Lucile S. Davison

REEL/FRAME
19821083

1/2 019 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--ON THE NATURE OF AGGREGATIVE STABILITY OF COLLOIDAL SOLUTIONS. THE
CONDITIONS OF THE EXISTENCE OF TWO PHASE DISPERSED SYSTEMS IN
AUTHOR--(03)-BARBOY, V.M., GLAZMAN, YU.M., FUKS, G.I.
COUNTRY OF INFO--USSR *B*
SOURCE--KOLLOIDNYY ZHURNAL, 1970, VOL 32, NR 3, PP 321-326
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--COLLOID, CHEMICAL STABILITY, THERMODYNAMICS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1998/0189 STEP NO--UR/0069/70/032/003/0321/0326
CIRC ACCESSION NO--AP0120887
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120887

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT IS DEMONSTRATED THAT TWO PHASE
DISPERSED SYSTEMS CAN EXIST IN THERMODYNAMIC EQUILIBRIUM IF THE SPECIFIC
SURFACE ENERGY IS SMALL AND INCREASES FAST ENOUGH WITH DECREASING
PARTICLE RADIUS. FACILITY: KIEV. TEKHNOLOGICHESKIY INSTITUT
LEGKOY PROMYSHLENNOSTI, NIICHASPROM, LABORATORIYA FIZIKO KHIMII
POVERKHNOSTI, MOSCOW.

UNCLASSIFIED

USSR

ALENICHEV, V. S., MEL'NIKOV, M. A., BARCHENKO, T. N.,
Tomsk

"Explosive Wires as a Source of Shock Waves in Water"

Moscow, Electronnaya Obrabotka Materialov,
No. 1 (37), 1971, pp 32-35

Abstract: The electrical explosion of wires is widely used in technological processes such as stamping, expansion of pipes and so forth.

An experimental investigation was made in order to verify the validity of formulae giving the optimum length and cross section of wire as a function of voltage, capacity of the circuit, and natural frequency of the circuit. The test wire was placed in a tank filled with water. The shock wave pressure was measured by an impact pressure transducer located 150-200 millimeters from the wire axis.

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USSR

ALENICHEV, V.S., etal, Electronnaya Obrabotka Materialov, No 1 (37), 1971,
pp 32-35

The agreement between calculations and tests was
satisfactory.

It was also discovered that the wire material having
the lowest resistivity produces the highest shock wave
pressure.

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- 40 -

1/2 022 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--GAMMA RAY SPECTRA RESULTING FROM THE CAPTURE OF THERMAL NEUTRONS BY
ZINC 64, ZINC 66, ZINC 67, AND ZINC 68 -U-
AUTHOR-(05)-BARCHUK, I.F., BAZAVOV, D.A., BELYKH, G.V., GOLYSHKIN, V.I.,
MURZIN, A.V.
COUNTRY OF INFO--USSR
SOURCE--YAD. FIZ. 1970, 11(5), 934-41 *B*
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--THERMAL NEUTRON, GAMMA RAY, SPECTRUM, ZINC ISOTOPE, PARTICLE
CAPTURE, SEMICONDUCTOR DETECTOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0582

STEP NO--UR/0367/70/011/005/0934/0941

CIRC ACCESSION NO--AP0137667

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137667

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HARD PART OF GAMMA RAY SPECTRA RESULTING FROM THE CAPTURE OF THERMAL N BY PRIME 64, PRIME66, PRIME67, PRIME 67 ZN ISOTOPES WAS STUDIED BY USING A SEMICONDUCTOR GE(LI) DETECTOR. ENERGIES AND INTENSITIES OF GAMMA LINES WITHIN THE GAMMA SPECTRA RANGE MEASURED ARE DETD. TRANSITION SCHEMES ARE COMPILED BASED ON THE DATA OBTAINED. A STRONG DISCREPANCY IS FOUND BETWEEN THE VALUES OF SPECTROSCOPIC FACTORS FOR P LEVELS OBSERVED IN THE REACTION (D,P), AND THE PROBABILITY OF EL TRANSITIONS FROM THE CAPTURE STATE TO THESE LEVELS IN THE (N,GAMMA) REACTION. IN PRIME69 ZN THE MOST INTENSIVE TRANSITIONS FROM THE CAPTURE STATE ARE THOSE TO THE LEVELS WHICH ARE ABSENT IN THE OTHER REACTIONS. FACILITY: INST. FIZ., KIEV, USSR.

UNCLASSIFIED

USSR

UDC 616.24+616.594.171.2]-08

TRINUS, Ye. K., BARCHUK, V. E., and GORBUNOVA, Ye. N., Kiev Scientific Research Institute of Infectious Diseases, Ministry of Health, Ukrainian SSR

"Treatment of Pulmonary Candidiasis"

Kiev, Vrachebnoye Delo, No 9, 1971, pp 25-26

Abstract: Five patients suffering from pulmonary candidiasis as a complication of acute bacterial pneumonia or bronchitis received daily 4,000,000 to 8,000,000 units of nystatin by inhalation or 2,000,000 to 3,000,000 units of levorin [antifungal antibiotic obtained from *Actinomyces levoris* Krass. and *Actinomyces globisporus*] along with other fungicides (methylene blue, iodine preparations, nitrofurantoin derivatives) and vitamins C and B. These agents improved the patients' general condition, lowered their body temperature, and eliminated the candidiasis symptoms, but x-rays and physical findings indicated that the process was continuing. Stable improvement was brought about by the inhalation of water-soluble nystatin or levorin (200,000 units) twice a day for 5 to 10 days. One patient (whose case history was presented in some detail) who could not tolerate inhalation of water-soluble levorin responded to rectal administration of the antibiotic.

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USSR

UDC: 621.375.029.67

BARCHUKOV, A. I., KONEV, Yu. B., PROKHOROV, A. M., TERIN, V. S.

"A 10.6 Micron Laser Amplifier With Periodic Structure of the Amplified Beam"

Moscow, Radiotekhnika i Elektronika, Vol. 16, No 6, Jun 71, pp 996-1004

Abstract: An experimental study is made of a single-mode CO₂ laser amplifier based on a 90-meter quasioptical mirror transmission line. An estimate is made of the effect which errors in alignment of the line correctors and amplitude-phase distortions have on beam degradation. Basic design data and characteristics are presented for the laser. The output power is more than 500 watts. The study showed that the proposed design could be competitive with the telescopic amplifier described by P. Miles and W. Lotus (IEEE J. Quantum Electronics, 1968, QE-4, 11, 811). The principal advantage of the gas laser studied in this work is the fact that the phase correctors in the line are simpler devices than the telescopes in the Miles-Lotus laser. These correctors provide periodic focusing of the beam, thus reducing broadening due to non-linearity of amplification. Calculations show that cells no more than 20-25 mm in diameter should be used to simplify matching between the line and the optical laser, shifting the matching itself to the laser. The total experimentally measured losses in amplification were too high to allow any appreciable increase in output power.

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USSR

APOLLONOV, V. V., ~~BARCHUKOV, A. I.~~, KONYUKHOV, V. K., and PROKHOROV, A. M.,
Physics Institute imeni P. N. Lebedev, Academy of Sciences USSR

"Thermoelastic Deformation of the Surface of a Solid Under the Action of a
Laser Beam"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 15,
No 5, 5 Mar 72, pp 248-250

Abstract: The article describes the behavior of the surface of a solid under the action of a continuous laser beam, where the result is distortion of the surface profile through thermoelastic deformations rather than surface failure. A continuously operating unimodal CO₂ laser was used as the radiation source, and the target was a fused quartz disk. It was found experimentally that under the action of laser radiation there is buckling of the surface of the irradiated solid at the place where the beam strikes. The authors thank F. V. BUNKIN and the late V. I. DANILOVSKAYA for valuable discussions.

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USSR

UDC 542.91:541.69:547.362:547.556.9

SHISHMAKOVA, T. G., BARDAMOVA, M. I., KONYASHEVA, N. V., KOTLYAREVSKIY, I. L.,
PERSHIN, G. N., and MIKHELOVA, A. L., Institute of Chemical Kinetics and Com-
bustion, Siberian Branch Acad. Sci. USSR, and Chemical-Pharmaceutical In-
stitute, Acad. Med. Sci. USSR

"Synthesis and Study of the Antimicrobial Activity of the Amino Derivatives of
4-Hydroxy-4'-ethynylazobenzene"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 4, Apr 72,
pp 978-980

Abstract: 20 g of 4-Hydroxy-4'-acetylazobenzene (I) was refluxed for 8 hrs
with 11.6 g K_2CO_3 , 150 ml acetone, and 15.2 g allyl bromide, cooled, and
poured into water. Solid material was obtained and after recrystallization
from alcohol yielded 17.9 g 4-allyloxy-4'-acetylazobenzene (II), m. p. 130-
132. (II) was hydrogenated over Pd/CaCO₃ to yield 4-propoxy-4'-acetylazo-
benzene (III), m.p. 117-120°. Chlorination of (III) followed by dehydrochlori-
nation yields 4-propoxy-4'-ethynylazobenzene, m.p. 97-98°. Mannich conden-
sation of that product yields 4-propoxy-4'-(piperidinopropyne-1"-yl-1")-azo-
benzene, m.p. 188-190°. However, the free hydroxy analogue -- 4-hydroxy-4'-
ethynylazobenzene reacts only with difficulty via the Mannich condensation

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USSR

SHISHMAKOVA, T. G., et al, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 4, Apr 72, pp 978-980

giving low yields of 4-hydroxy-4'-(morpholinopropyn-1"-yl-1")-azobenzene (VI), m.p. 250-253° and 4-hydroxy-4'-(piperidinopropyn-1"-yl-1")-azobenzene (VIII), m.p. 177-178°. (VII) showed a rather high antitubercular activity, surpassing (VI). Several analogues of (VII) were bioassayed, but none showed any activity. It was concluded that in order to have biological activity a compound must have a free hydroxyl group and a single triple bond.

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USSR

UDC 541.69+547.551+547.362

PERSHIN, G. N., MILOVANOV, S. N., MIKHERINA, A. L., SHISHENKOVA, T. G.,
BARDAKOVA, M. I., and KOTLYAREVSKIY, I. L., All-Union Chemical-Pharma-
ceutical Scientific Research Institute Imeni S. Ordzhonikidze, and
Institute of Chemical Kinetics and Combustion of the Siberian Division
of the Academy of Sciences, USSR

"Bacteriological Properties of Some Aromatic Mono- and Diacetylene
Amines"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 8,
Aug 70, pp 1904-1906

Abstract: Continuing their studies on the germistatic properties of
acetylene amines, the authors report biological properties of a series
of resorcine, phloroglucinol, and mesitylene derivatives. The germi-
static activity was tested in vitro on 17 microorganisms. It was found
that only amines with one triple bond in each aliphatic chain were
active. Introduction of a second triple bond led to an almost complete
inactivation of the molecule.

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USSR

UDC: 621.398

BARDENSHTEYN, L. M. and MINEVICH, M. L.

"Characteristics of Synchronization Channels in Telemetric Transmission of Information"

Tr. metrol. in-fov SSSR (Transactions of the Metrological Institutes of the USSR) No 126(186), 1971, pp 143-151 (from RZh-Avtomatika, telemekhanika i vychislitel'naya tekhnika, No 12, 1971, Abstract No 12A192)

Translation: The characteristics of a synchronization channel in the transmission of telemetered information are investigated. The authors deduce the probable characteristics of the channel, using an interval code for transmission of information of a moment in time, with two algorithms for constructing a decoding device for the synchronization code. Four illustrations, bibliography of four. Resume

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USSR

UDC 577.1:615.7/9

DANILENKO, V. S., KOTIY, V. N., TARNAVSKAYA, M. I., BARDIK, YU. V.

"Effect of Unithiole on the Chromaffin Tissue of the Adrenals in Acute Radiation Sickness"

Farmakol. i toksikologiya. Resp. mezhved. sb. (Pharmacology and Toxicology. Republic Interdepartmental Collection of Works), 1970, No 5, pp 76-79 (from RZh-Biologicheskaya Khimiya, No 19, 10 Oct 70, Abstract No 19 F1824)

Translation: Unithiole (I) increases the catecholamine content in chromaffin cells of the adrenals in intact animals and restores the epinephrine and norepinephrine content in the adrenals, which decreases substantially after X-irradiation. I strengthens the compensatory functions of the sympathicoadrenal system. This may explain the radioprotective and partial therapeutic effects of the thiol compounds.

Resume

1/1

USSR

UDC 621.314.1:621.382.3.001.24

BARDILA, T.I., RADIONCHIK, K.N., RUDENKO, V.N.

"Analysis Of Transistorized Converters At High Frequencies"

Teor. elektrotehnika. Resp. mezhved. nauch.-tekhn.sb. (Theory Of Electrical Engineering. Republic Interdepartmental Scientific-Technical Collection), 1971, Issue 11, pp 20-23 (from RZh--Elektronika i yeye primeneniye, No 3, March 1972, Abstract No 3B567)

Translation: With the help of nonlinear differential equations, an analysis is offered of a transistor with the effect at the input of two signals of large amplitude with frequencies right up to cutoff. The nonlinear dependence of the collector current, the inertia, and the conductances caused by diffusion and recombination processes in the transistor are taken into account. It is proposed with the aid of models to develop a solution for the differential equations obtained. Consequently, during the choice of approximation expressions the possibility of their modeling was considered. 3 fig. 2 ref. Summary.

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1/2 044 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--MASS TRANSFER UNDER TURBULENT FLOW CONDITIONS TO A STATIONARY DISK
ELECTRODE IN A VESSEL WITH MECHANICAL MIXING -U-
AUTHOR--(03)-BARDIN, M.B., DIKUSAR, A.N., KISHINEVSKIY, M.KH.
COUNTRY OF INFO--USSR
SOURCE--ELEKTROKHIMIYA 1970, 6(2), 212-15
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, PHYSICS
TOPIC TAGS--MASS TRANSFER, TURBULENT FLOW, PLATINUM ELECTRODE, OXIDATION
REDUCTION REACTION, FERRICYANIDE, FERROCYANIDE, MATERIAL MIXING, NUSSELT
NUMBER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1056 STEP NO--UR/0364/70/006/002/0212/0215
CIRC ACCESSION NO--AP0112194
UNCLASSIFIED

2/2 044

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0112194

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MASS TRANSFER OF THE REDOX SYSTEM, $Fe(CN)_6^{4-}$ PRIME⁻ NEGATIVE, UNDER TURBULENT FLOW CONDITIONS WAS STUDIED IN ALK. SOLN. AT A SMALL (0.075 CM PRIME²) STATIONARY PT DISK BY VOLTAMMETRIC CURVES FROM 0 TO 0.5 V (100 MV-MIN). THE $Fe(CN)_6^{4-}$ PRIME³ NEGATIVE CONCN. VARIED BETWEEN 4 TIMES 10 PRIME⁻ NEGATIVE³ TO 2 TIMES 10 PRIME⁻ NEGATIVE² M, KOH CONCN. VARIED 2 TO 6N, TEMP. VARIED 5 TO 45DEGREES, AND THE ROTATION OF THE 2 BLADED MIXER, WHICH WAS LOCATED 41.5 MM ABOVE THE ELECTRODE, VARIED FROM 180 TO 2400 RPM. THE EXPTL. EVALUATED NUSSELT NO., $NU = 0.805 Re^{0.58} Sc^{0.26}$ WAS VALID FOR THESE CONDITIONS, WHERE NU EQUALS KD/D , Re EQUALS $MD PRIME^2/V$, Sc EQUALS V/D , K IS THE MASS TRANSFER COEFF., D THE CHARACTERISTIC LENGTH (MIXER DIAM.), M THE ROTATION RATE OF THE MIXER, V THE KINEMATIC VISCOSITY, AND D THE DIFFUSION COEFF. FACILITY: KISHINEV. GOS, UNIV., KISHINEV, USSR.

UNCLASSIFIED

1/2 009 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--REDUCING EFFECT OF ALKALI METAL HYDROXIDES ON OSMIUM TETRAOXIDE IN
AQUEOUS SOLUTIONS -U-
AUTHOR--(02)-BARDIN, M.B., GONCHARENKO, V.P.
COUNTRY OF INFO--USSR
SOURCE--ZH. NEORG. KHIM. 1970, 15(2), 490-5
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHEMICAL REDUCTION, ALKALI METAL HYDROXIDE, AQUEOUS SOLUTION,
OSMIUM COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/0793 STEP NO--UR/0078/70/015/002/0490/0495
CIRC ACCESSION NO--AP0104239
UNCLASSIFIED